

## Alternative I

# West-Side Conveyance and River Restoration

## Overview

This alternative will greatly increase reservoir capacity on the west side of the Sacramento Valley to increase water supply, and will isolate water conveyance from the river system in the Sacramento Valley to avoid fish entrainment. Consolidation of existing upstream diversions will further reduce entrainment. A large isolated conveyance facility connecting major new and existing reservoirs along the west side of the Sacramento Valley and extending to south Delta pumping plants will provide excellent export water quality and ensure water supply reliability.

*Water supply conveyance is separated from the Sacramento River*

High quality water will be diverted during high flood flows from Shasta Lake and the Feather River at Thermalito Afterbay, and conveyed to new off-stream storage facilities totaling 6 to 8 million acre-feet for "banking" on the west side of the Sacramento Valley. Operation of Shasta and Oroville reservoirs would be modified to work in concert with the new reservoirs. All reservoir operations would be required to meet flow standards that fully protect instream conditions for fisheries. The conveyance system from the new reservoirs would extend south along the west side of the Sacramento Valley, cross under the Delta, and terminate at the current south Delta pumps. Conveyance capacity would be in the range of 10,000 to 15,000 cfs.

*About 6 to 8 million AF of new upstream storage is added*

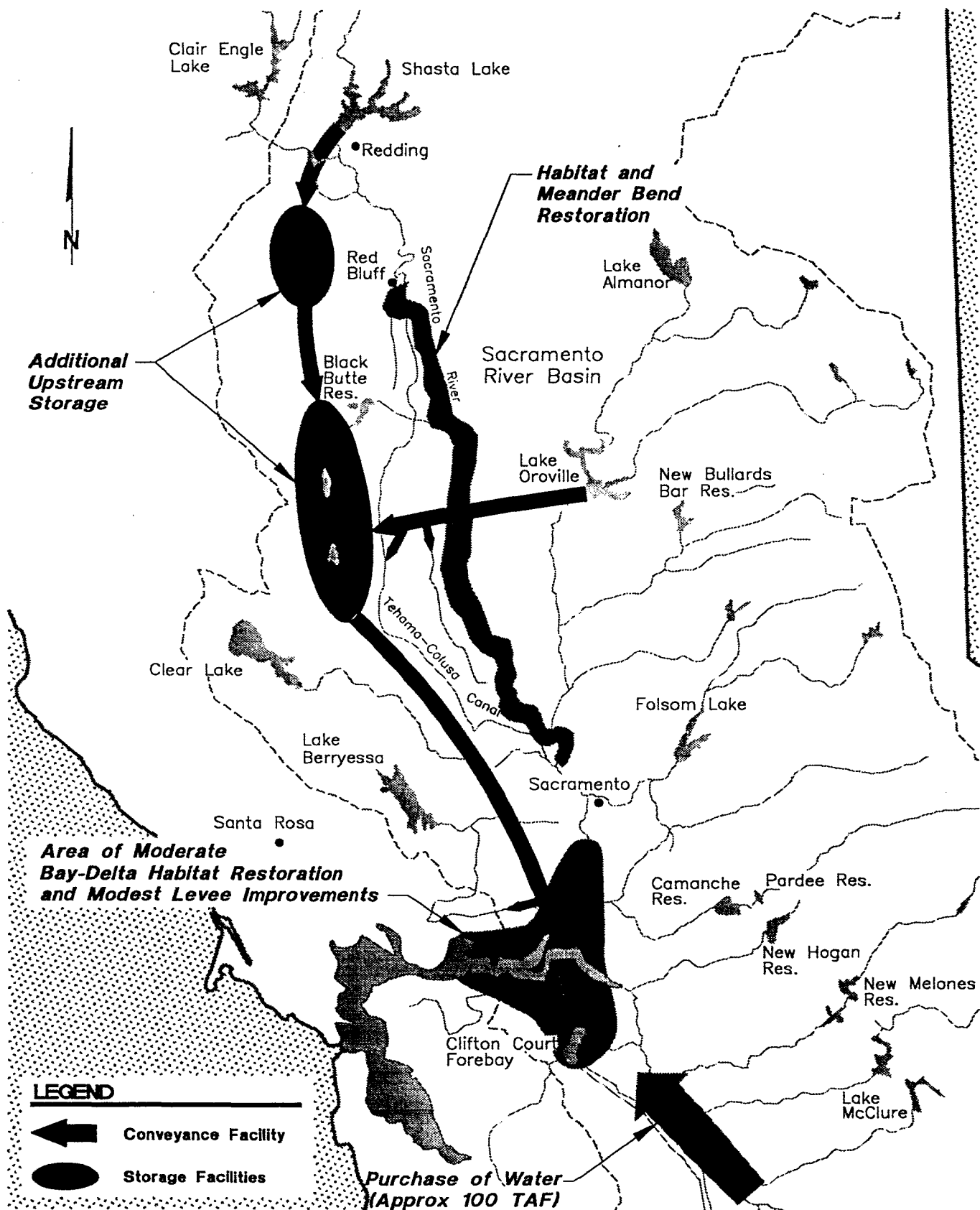
Sacramento River diversions such as Red Bluff and Glenn-Colusa Irrigation District would be eliminated and irrigation districts would receive stored water. Turnouts along the new conveyance system would serve west-side agriculture and groundwater conjunctive use areas. The conveyance facility could include possible additional interties to the North Bay Aqueduct, Contra Costa Canal, the Mokelumne Aqueduct, and the South Bay Aqueduct. Water will also be purchased from San Joaquin River users (or developed from expanded surface/groundwater storage) to improve fish transport through the Delta and improve south Delta water quality.

*Connections to the system reduce entrainment and increase flexibility*

Moderate habitat improvements including extensive restoration of meander belts will occur along the upper Sacramento River. Remaining diversions of moderate to high priority will be screened. These actions, combined with removal of major diversions from the river and compliance with strong instream flow standards, will provide excellent habitat for fisheries in the river. Moderate levels of habitat restoration will be carried out in the Delta to increase riparian and shallow water habitat. Where feasible, habitat restoration will be combined with levee improvements. Downstream, tidal wetlands will be restored around Suisun Bay

*Habitats are restored throughout the system*

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to benefit migrating salmon and provide spawning and rearing areas for Delta smelt. Channel improvements along the San Joaquin River will improve conditions for anadromous fish during low flows. Ecosystem restoration actions will be guided by a strategy of adaptive management.

The vulnerability of the Bay-Delta system will be reduced through implementation of a comprehensive Delta Protection Plan. The plan will guide the stabilization or improvement of certain Delta levees to increase protection, the maintenance of levees, and implementation of an emergency response program to address levee failure. Under this alternative, stabilization of levees would receive modest emphasis, while maintenance and emergency response would receive high emphasis.

***Comprehensive  
Delta Protection  
Plan***

Delta and tributary water quality will be improved through source control efforts to reduce and manage discharges from agricultural operations and urban areas throughout the Bay-Delta system. Funding for enforcement of source control regulations will be expanded and implementation of Best Management Practices for salinity and pesticide residues will be recommended (e.g., retention of agricultural drainage). Retirement of marginally productive agricultural lands that contribute substantially to instream water quality problems in the San Joaquin River will be expanded. Measures to reduce the total salt load transported to the San Joaquin Valley will be implemented. Pollutants in San Joaquin River inflow will be diluted using water purchased or developed in the San Joaquin River basin.

***Pollutant source  
control improves  
water quality***

This alternative establishes a long-term drought water bank and provides incentives for additional land fallowing during drought years to improve supply reliability. Expanded conjunctive use and groundwater banking will improve operational flexibility. Moderate levels of demand management including water conservation, water reclamation, and land retirement will be used to reduce water shortages for existing water users and provide some additional Delta outflow during drier years.

***Water bank,  
improved demand  
management help  
balance supply  
and demand***

A new conveyance system avoids entrainment, improves reliability, and ensures excellent water quality. Additional water storage will further maximize flexibility to meet Delta needs, while moderate levee and habitat improvements will provide environmental and system infrastructure benefits.

***Actions provide  
multiple benefits***

**Potential Sequencing** (sequencing is described for the main alternative, sequencing for the optional diversion points is similar)

**Stage 1.** Implementation would begin with the core actions.

***Core actions***

**Stage 2.** Actions implemented during Stage 2 of this alternative will include establishment of a permanent drought water bank, a moderate demand management program, groundwater banking and conjunctive use, high priority habitat restoration actions, and installation of high priority fish screens. Implementation of a comprehensive Delta protection plan will begin. Additional San Joaquin River water (100 TAF) will be developed or acquired for

***Demand  
management and  
high priority  
habitat and levee  
improvements***

environmental uses. Stage 2 will include retirement of approximately 70,000 to 100,000 acres of marginally productive agricultural lands in the San Joaquin Valley.

**Stage 3.** In stage 3, approximately 2 to 3 million AF of storage on the west side of the Sacramento Valley will be constructed. Moderate habitat restoration actions, and fish screen installations will be implemented. Stabilization of levees would receive modest emphasis, while maintenance and emergency response would receive high emphasis. Existing conveyance facilities such as the Tehama-Colusa Canal will be used. Additional source controls for water quality improvement will be implemented. A variety of actions will be studied and implemented in south Delta channels to reduce adverse effects of San Joaquin River salinity and to maintain water levels and circulation.

*Upstream storage  
and moderate  
level of habitat  
and levee  
improvements*

**Stage 4.** During stage 4, conveyance from Thermalito Afterbay to the new storage will be constructed. Additional increments of habitat restoration actions and fish screen installations will be implemented. Meander belts on the upper Sacramento River and some increased flows to improve water quality complete this stage.

*Tie Thermalito  
Afterbay to new  
storage*

**Stage 5.** Isolated conveyance from the new storage to the south Delta export pumps will be constructed. Additional increments of habitat restoration actions and fish screen installations will be implemented.

*Conveyance to  
south Delta  
pumps*

**Stage 6-8.** Actions during these stages will include construction of diversion and conveyance from Shasta Dam, 4 to 6 million acre-feet of additional storage on the west side Sacramento Valley, and habitat restoration actions, and fish screen installations to an extensive level of implementation.

*Complete  
conveyance,  
storage, habitat,  
and levee  
improvements*

## Optional Diversion Points

Optional diversion points on the Sacramento River exist for west-side conveyance:

1. High quality water can be diverted during flood flows from the Sacramento River at Red Bluff via the Tehama-Colusa Canal and from the Feather River at Thermalito Afterbay. Water from both diversions could be conveyed to a new off-stream storage facility (approximately 1.5 to 2 million acre-feet) located on the west side of the Sacramento Valley. A conveyance facility would be constructed from the new reservoir to pumps in the south Delta.
2. High quality water could be diverted from the Sacramento River upstream of the Sacramento Weir and above the identified "Critical Habitat for Delta Smelt." Water would be transported through an isolated conveyance facility that connects to the Sacramento Ship channel and then across the Delta to the southern pumps.

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## Potential Sequencing

